REMARKS

In response to the pending Office Action of March 18, 2003, a terminal disclaimer to obviate a double patenting rejection over prior U.S. Patent No. 6,420,181 is being submitted herewith. This should place method claims 1-11 and 26 in condition for allowance.

Claims 13, 15, 19, 20, 23, 24, 25, and 27 have been amended to recite a sorbent material means having a detector reagent pre-deposited in the sorbent material means for detecting the presence of the analyte. The analyte is adsorbed by and concentrated in the sorbent material means at the spot of contact of the analyte with the sorbent material means. The art of record in the pending office action does not appear suggest or teach a sorbent material means having the function of retaining the analyte at the spot of deposition in the sorbent material means.

Claims 13-16 were rejected under 35 USC 102(b) as being clearly anticipated by Tyihak. Tyihak does not appear to clearly teach or disclose the limitations of claims 13-16, as amended, where a sorbent material means retains the analyte at the spot of deposition. Further, it is not clear that Tyihak discloses the limitation of claim 15 regarding the thickness of the end portion of the tube means.

Claims 17-27 were rejected under 35 USC 103(a) as being unpatentable over Tyihak. Note that claim 26 is a method claim. From above, Tyihak does not appear to suggest or teach the limitation of claim 13, as amended, where a sorbent material means retains the analyte at the spot of deposition. Further, Thihak does not appear to teach or suggest the particular chemical combinations set forth in claims 20, 21, 22, 23, and 25.

In a previous amendment it was argued that, as understood, Tyihak discloses a linear over-pressurized thin-layer chromatographic apparatus where capillary tubes 6 and 7 are connected to a sorbent layer plate 1. The samples are fed into the apparatus containing the sorbent layer by overpressure applied to the capillary tube, column 4, lines 49-55. Further, the analyte does not appear to remain at the place of deposition, but appears to migrate across the sorbent plate under pressure. With reference to the prosecution of U.S. Patent No. 5,935,862, it was pointed out that the invention is not determining the presence of analytes, such as chemical warfare agents, by thin layer chromatography (TLC) methods. Instead, applicants are using a plate coated with a thin layer of sorbent, chromatographic material that has been marketed for use in performing TLC experiments. The coated plate is used as a solid support for collecting the analyte in a small spot and as a medium for performing a chromatography detection reaction that detects the presence of the analyte at the small spot. The analyte remains in a small spot on a solid support, such as the TLC plate, when a solution of the analyte is applied to the solid support by capillary deposition using tubes with microcapillary sized openings. The analyte is then detected by a chromogenic detector reagent. This is dissimilar from the migration disclosed in Tyihak, particularly when noted that the test of Tyihak is different than the present invention as presented in the prosecution remarks of related U.S. Patent No. 6,420,181 issued to the present inventor, Thaddeus Novak

As understood, in performing thin layer chromatography (TLC) experiments, the analyte is eluted with an eluant (i.e., a solvent or mixtures of solvents), which results in the sample migrating and separating into distinct spots, where the number of spots depends upon the number of analytes/components in the sample. Diffusion occurs as the

components migrate up the TLC plate. Therefore, the method of the present invention is not thin layer chromatography (TLC), and can best be described as the opposite of TLC or a non-TLC procedure. This distinction is discussed, for example, in page 3 of the present application. In TLC, components of the analytes separate, but with the present invention components of the analyte do not separate but are concentrated at a small spot where they are deposited on the plate by capillary action. Migration of the analyte on the TLC plate is contrary to optimization of the results of the present invention.

The drawings have been objected to as being informal. It is requested that the requirement for new drawings be withheld until a Notice of Allowance has been issued for this case.

Since all pending claims are considered allowable, this case is considered in condition for allowance.

Any costs incident with the filing of this amendment should be charged to the U.S. Army Materiel Command, Patent Office deposit account number 19-2201. Any deficiency or overpayment should be charged or credited to this numbered deposit account.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE
(U.S. Application Serial No. 09/340,165)

In The Claims (claims 13, 15, 19, 20, 22, 23, 24, 25, and 27 are amended as follows):

13. (Twice Amended) A system for screening solutions containing an analyte and for detecting the presence of the analyte, comprising:

means for obtaining a solution containing the analyte;

tube means for receiving the solution containing the analyte, the tube means having an end portion with a microcapillary sized opening formed therein for dispensing the solution containing the analyte by capillary action;

sorbent material means having a detector reagent pre-deposited in the sorbent material for detecting the presence of the analyte [pre-deposited in the sorbent material], the sorbent material means receiving the solution containing the analyte from the tube means as the end portion of the tube means having the microcapillary sized opening is brought in contact with the sorbent material means so the solution containing the analyte is deposited on the sorbent material means by capillary action where the detector reagent has been pre-deposited and with the analyte being adsorbed by and concentrated in the sorbent material and remaining at the spot [at the place] of contact between the end portion of the tube means with the sorbent material means for combining with the detector reagent.

15. (Once Amended) The system according to claim 13, wherein the microcapillary sized opening is defined by an end wall of the end portion of the tube means and the thickness

of the end wall is at least twice the diameter of the microcapillary sized opening to reinforce the end portion of the tube means and to provide uniform sealing contact between the end wall and the sorbent material means when the tube means is placed in contact with the sorbent material means.

19. (Once Amended) The system according to claim 13, wherein the sorbent material means comprises a thin layer chromatographic sheet provided with a silica gel surface layer.

20. (Once Amended) The system according to claim 13, wherein the sorbent material means comprises a thin layer chromatographic medium provided with a polysilicic acid sorbent.

22. (Once Amended) The system according to claim 13, wherein the sorbent material means is formed of a polar silica gel material and the solvent for the solution containing the analyte is a non-aqueous solvent that has a lower polarity than the sorbent material means.

23. (Once Amended) The system according to claim 13, wherein the sorbent material means is a polar material selected from the group consisting of silica gel, high performance thin layer chromatography (HPTLC) silica gel, polysilicic acid, and aluminum oxide and the solvent for the analyte is a non-aqueous solvent that is selected from the group comprising hexadecane, nonane, cyclohexane, trimethylpentane,

petroleum ether, iso-hexanes, hexane, heptane, cyclopentane, trichlorotrifluoroethane, and pentane.

24. (Once Amended) The system according to claim 13, wherein the detector reagent comprises a solution in which the detector reagent is dissolved in a polar solvent and deposited on the sorbent material means, wherein the sorbent material means is a polar material selected from the group of silica gel, high performance thin layer chromatography (HPTLC) silica gel, polysilicic acid, and aluminum oxide and wherein the solvent for the analyte is less polar than the sorbent material means and is selected from the group comprising hexadecane, nonane, cyclohexane, trimethylpentane, petroleum ether, iso-hexanes, hexane, heptane, cyclopentane, trichlorotrifluoroethane, and pentane.

25. (Once Amended) The system according to claim 13, wherein the sorbent material means is a chromatographic material selected from the group consisting of silica gel, high performance thin layer chromatography (HPTLC) silica gel, polysilicic acid, aluminum oxide, cellulose, polyamide, reversed phase silica gel [Gel] C_2 (dimethyl bonded), reversed phase silica gel C_2 (ethyl bonded), reversed phase silica gel C_8 (octyl bonded), reversed phase silica gel C_{18} (octadecyl bonded), acetylated cellulose, silica gel modified with amino groups, silica gel modified with cyano groups, Kieselghur impregnated with hydrocarbons, anionic and cationic anion exchange resins, diethylaminoethyl cellulose, and mixtures of the listed sorbents, and the solvent for the analyte is selected from the group comprising acetic acid, water, aqueous buffer solution

with a pH in the range 2-12, dimethylsulfoxide, N-methylpyrrolidone, N,N-dimethyl acetamide, N,N-dimethyl formamide, propylene carbonate, acetonitrile, 2-methoxyethanol, diethylcarbonate, pyridine, methanol, acetone, ethanol, beta-phenethylamine, 2-ethoxyethanol, dioxane, methyl ethyl ketone, methyl n-propyl ketone, methyl acetate, methyl isobutyl ketone, chloroform, tetrahydrofuran, n-propanol, methyl isoamyl ketone, ethyl acetate, 2-methoxyethylacetate, isobutyl alcohol, n-butyl acetate, 2-butanol, 2-propanol, 1-butanol, ethylene dichloride, dichloromethane, ethyl ether, o-dichlorobenzene, chlorobenzene, benzene, o-xylene, m-xylene, p-xylene, methyl tertiary-butyl ether, toluene, carbon tetrachloride, trichloroethylene, n-butyl chloride, hexadecane, nonane, cyclohexane, trimethylpentane, petroleum ether, iso-hexanes, hexane, heptane, cyclopentane, trichlorotrifluoroethane, and pentane.

27. (Once Amended) The system of claim 13, wherein the sorbent material means comprises a porous medium formed of two layers, the top layer formed of a sorbent substance and a detector reagent on or within a porous support, and wherein the analyte is deposited in the top layer, and the bottom layer is formed of a porous absorbent material containing a compound that dissolves in water to form a solution that wets the top layer, and the compound in aqueous solution reacts with substance produced due to the reaction or interaction of the analyte with the detector reagent in the top layer, thereby producing a color change, or a change in fluorescence under ultraviolet illumination.